

depositing a doped polysilicon layer over the entire surface of said silicon substrate, said doped polysilicon layer filling said contact hole;

performing an etch-back process to remove a portion of said doped polysilicon layer, said etch-back process leaving said doped polysilicon layer in said contact hole;

forming an ohmic contact layer over said doped polysilicon layer in said contact hole;

forming an anti-diffusion film on said ohmic contact layer;

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cont. forming a silicate glass film over the entire surface of said silicon substrate including said anti-diffusion film;

forming a concave hole by etching a portion of said silicate glass film, said concave hole having an internal wall;

forming a first electrode on said internal wall of said concave hole;

forming a BST dielectric film on said first electrode, said forming said BST dielectric sequentially including performing a NH₃-plasma process, performing a N₂O-plasma process, and depositing BST;

crystallizing said BST dielectric film, said crystallizing including performing a rapid thermal process;

forming a second electrode on said BST dielectric film, said BST dielectric film and said first and second electrodes forming said capacitor; and

performing a thermal treatment to stabilize said capacitor.
